

## CLAIMS

1. An elevator in which a hoisting rope set (3) consisting of hoisting ropes of a substantially round cross-section suspends a counterweight (2) and an elevator car (1) and which has one or more rope pulleys provided with rope grooves, one of said rope pulleys being a traction sheave (7) coated with a material increasing the coefficient of friction, said traction sheave being driven by a drive machine to move the hoisting rope set (3), **characterized** in that at least the traction sheave (7) forms together with the hoisting rope set (3) a material pair that allows the hoisting rope (3) to bite into the traction sheave (7) after the coating (102) on the surface of the traction sheave (7) has been lost.
2. Elevator as defined in claim 1, **characterized** in that the coating of the rope pulleys is made of rubber, polyurethane or some other elastic material.
3. Elevator as defined in claim 1 or 2, **characterized** in that the hoisting ropes (3) used are super-strong thin ropes having a diameter of less than 8 mm, preferably of 3-5 mm.
4. Elevator as defined in any one of the preceding claims, **characterized** in that the hoisting ropes (3) contain a load-bearing part twisted from steel wires.
5. Elevator as defined in any one of claims 1 - 5, **characterized** in that the elevator is safe to use even in exceptional conditions where the coating (102) on the surface of the traction sheave (7) has been lost.
6. A traction sheave (7) designed especially for steel wire ropes and having rope grooves (101) for hoisting ropes (3) on its outer rim (106) and a coating (102) increasing friction against the hoisting ropes (3),

**characterized** in that the material used in the traction sheave (7), at least under the coating (102) on the outer rim (106) of the traction sheave (7), is a material that allows the hoisting rope (3) to bite  
5 into it.

7. Traction sheave (7) as defined in claim 6, **characterized** in that the material of the traction sheave (7) may be soft steel, aluminum, cast iron, brass or some other metal or equivalent suited for the purpose.

10 8. Traction sheave (7) as defined in any one of claims 6 - 7, **characterized** in that it has at the bottom of the rope grooves (201) of the traction sheave (7) a groove shape (203) allowing the hoisting rope (3) to bite more effectively into the groove.

15 9. Traction sheave as defined in any one of claims 6 - 8, **characterized** in that the groove (203) provided under the coating (202) in the rope groove (201) to allow the hoisting rope (3) to bite more effectively into it may be an undercut groove, a V-shaped groove,  
20 a groove of some other shape appropriate for the purpose or a number of parallel grooves.

10. Traction sheave (7) as defined in any one of claims 6 - 9, **characterized** in that it comprises an insert (204) allowing the hoisting rope to bite into  
25 it, said insert being implanted under the coating (201) on the traction sheave (7), into which insert the hoisting rope (3) can bite, maintaining a grip sufficient for the operation of the elevator between the traction sheave (7) and the hoisting rope (3).

30 11. Traction sheave (7) as defined in any one of claims, **characterized** in that it has under the coating (102) in the rope groove (201) on the outer rim (106) of the traction sheave (7) a roughened area that makes

it possible to maintain a sufficient grip between the hoisting rope (3) and the traction sheave (7).